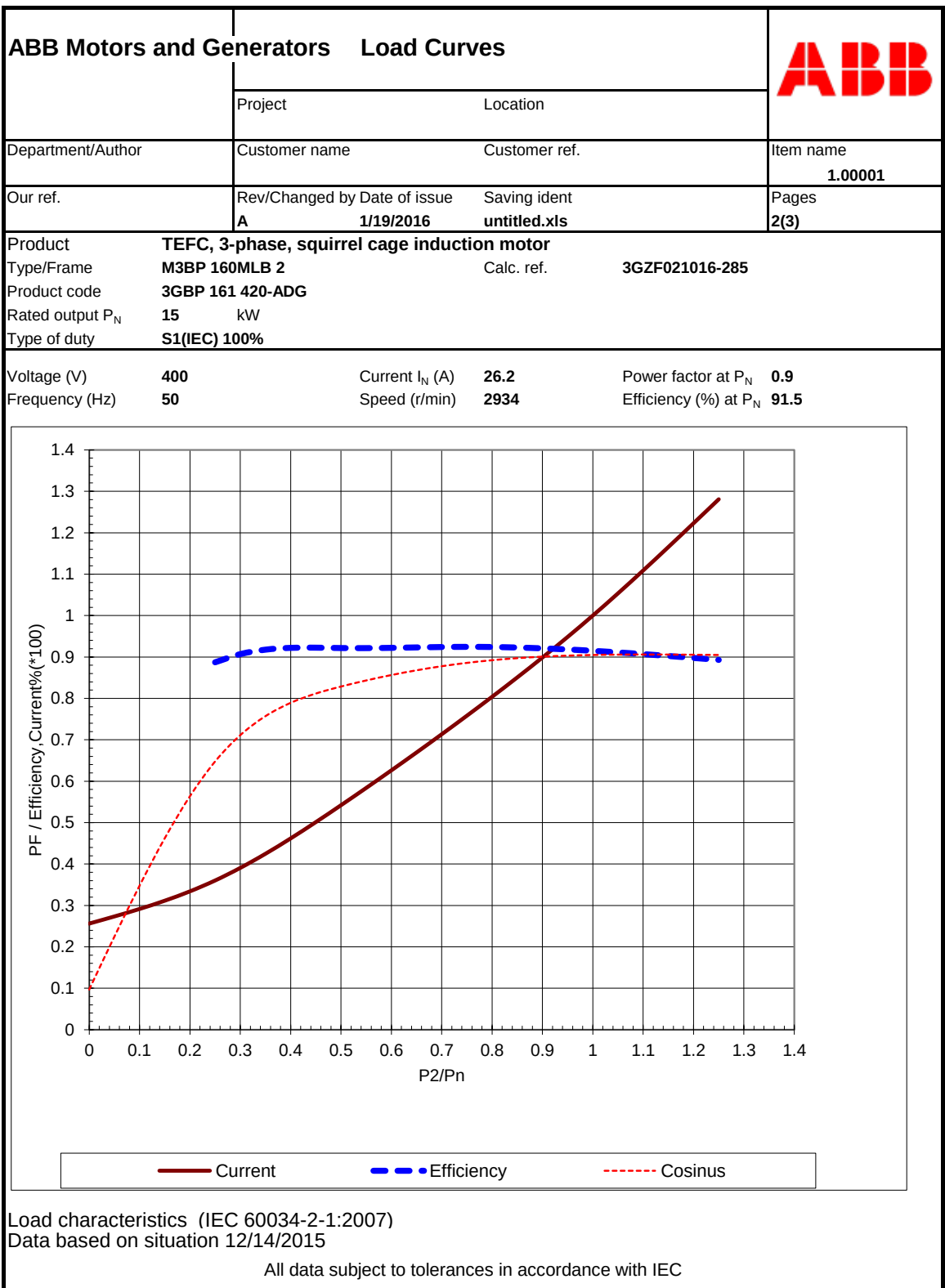


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author	Customer name	Customer ref.		Item name 1.00001	
Our ref.	Rev/Changed by A	Date of issue 1/19/2016	Saving ident untitled.xls	Pages 1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16152-PPN (3GBP161420-ADG+332+333)		Calc. ref.	3GZF021016-285
3	Type/Frame	M3BP 160MLB 2			
4	Mounting	IM1001, B3(foot)			
5	Rated output P_N	15	kW		
6	Service factor	1			
7	Type of duty	S1(IEC) 100%			
8	Rated voltage U_N	400	VD	$\pm 5\%$ (IEC 60034-1)	
9	Rated frequency f_N	50	Hz	$\pm 2\%$ (IEC 60034-1)	
10	Rated speed n_N	2934	r/min		
11	Rated current I_N	26.2	A		
12	No-load current	6.7	A		
13	Starting current I_s/I_N	7.5		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T_N	49	Nm		
15	Locked rotor torque T_s/T_N	2.5			
16	Maximum torque T_{max}/T_N	3.3			
17	Minimum torque T_{min}/T_N	1.8			
18	Speed at minimum torque	480	r/min		
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor
19	PLL determined from residual loss	100	26.2	91.5 / IE2	0.9
20		75	19.8	92.4	0.89
21		50	14.2	92.2	0.83
22		Start	196		0.45
23	Maximum starting time from hot	15	s		
24	Maximum starting time from cold	27	s		
25	Insulation class / Temperature class	F / B			
26	Ambient temperature	40	°C		
27	Altitude	1000	m.a.s.l.		
28	Enclosure	IP55			
29	Cooling system	IC411 self ventilated			
30	Bearing DE/NDE	6309/C3 - 6209/C3			
31	Type of Grease				
32	Sound pressure level (LP dB(A) 1m)	69	dB(A)	at load	
33	Moment of inertia $J = \frac{1}{4} GD^2$	0.053	kg-m2		
34	Balancing				
35	Vibration class				
36	Position of terminal box	Top			
37	Terminal box entries; no, dimens.				
38	Number of power terminals				
39	Direction of rotation	CW or CCW			
40	Total weight of motor	141	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
50	333 = Not for use in the USA				
51					
52					
Remarks:					
Data based on situation 12/14/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					



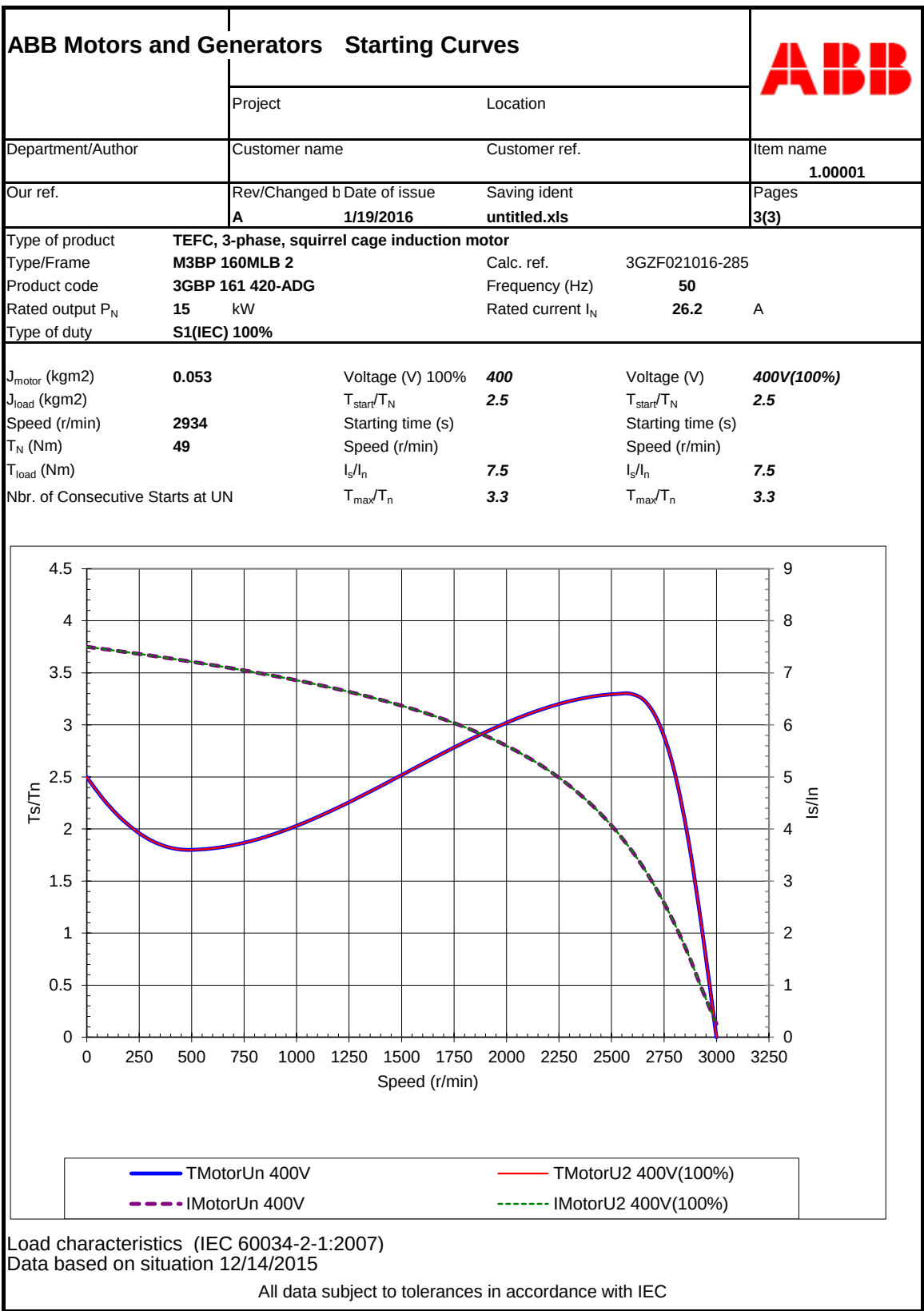
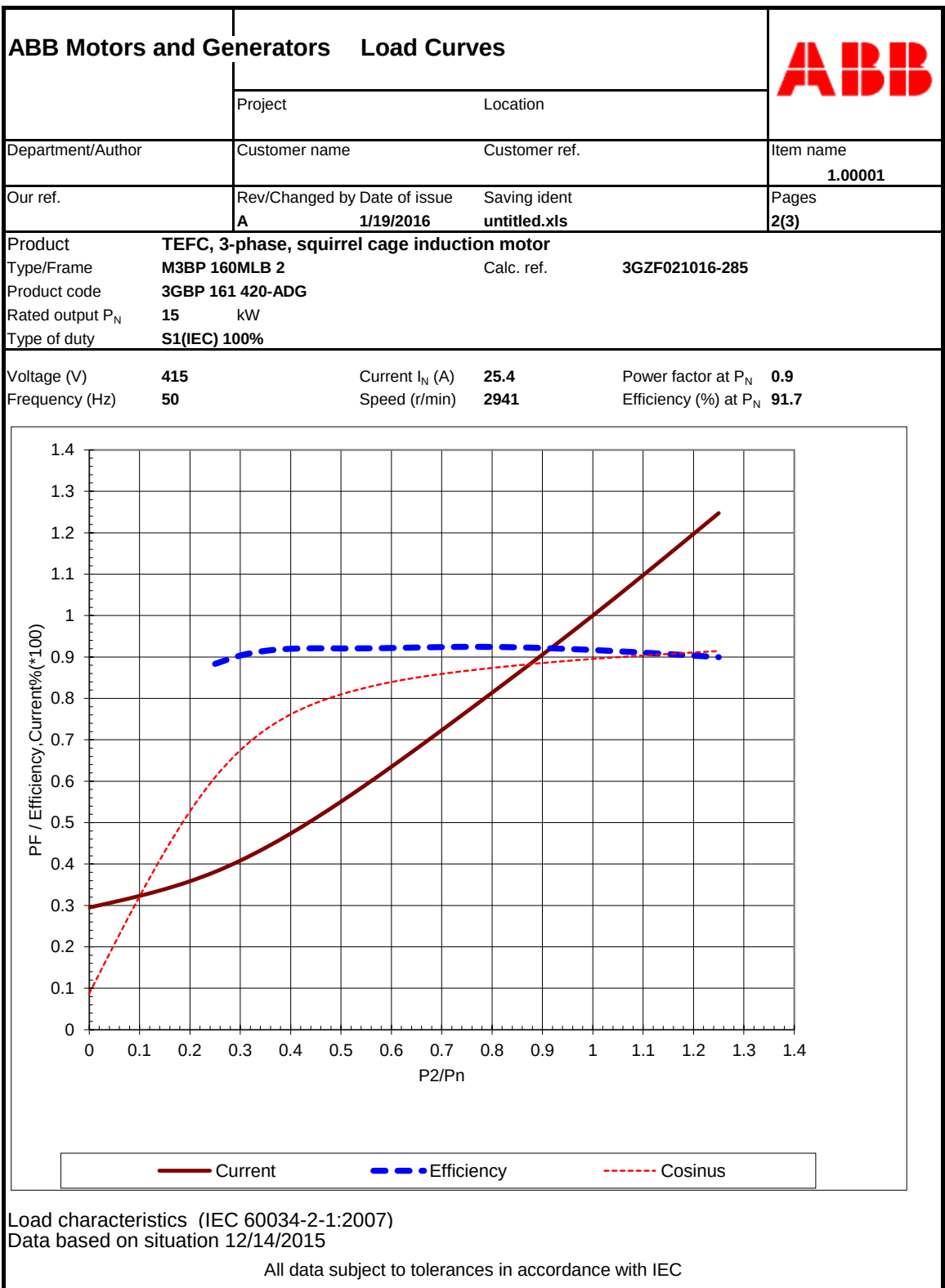


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author		Customer name		Customer ref.	
Our ref.		Rev/Changed by		Date of issue	
		A		1/19/2016	
		Saving ident		untitled.xls	
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				1.00001	
				Pages	
				1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16152-PPN (3GBP161420-ADG+332+333)			
3	Type/Frame	M3BP 160MLB 2			
4	Mounting	IM1001, B3(foot)			
5	Rated output P _N	15	kW		
6	Service factor	1			
7	Type of duty	S1(IEC) 100%			
8	Rated voltage U _N	415	VD	± 5 % (IEC 60034-1)	
9	Rated frequency f _N	50	Hz	± 2 % (IEC 60034-1)	
10	Rated speed n _N	2941	r/min		
11	Rated current I _N	25.4	A		
12	No-load current	7.5	A		
13	Starting current I _s /I _N	8.1		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T _N	49	Nm		
15	Locked rotor torque T _s /T _N	2.7			
16	Maximum torque T _{max} /T _N	3.6			
17	Minimum torque T _{min} /T _N	1.8			
18	Speed at minimum torque	480	r/min		
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor
19	PLL determined from residual loss	100	25.4	91.7 / IE2	0.9
20		75	19.5	92.4	0.87
21		50	14	92.1	0.81
22		Start	206		0.45
23	Maximum starting time from hot	15	s		
24	Maximum starting time from cold	27	s		
25	Insulation class / Temperature class	F / B			
26	Ambient temperature	40	°C		
27	Altitude	1000	m.a.s.l.		
28	Enclosure	IP55			
29	Cooling system	IC411 self ventilated			
30	Bearing DE/NDE	6309/C3 - 6209/C3			
31	Type of Grease				
32	Sound pressure level (LP dB(A) 1m)	69	dB(A)	at load	
33	Moment of inertia J = ¼ GD2	0.053	kg-m2		
34	Balancing				
35	Vibration class				
36	Position of terminal box	Top			
37	Terminal box entries; no, dimens.				
38	Number of power terminals				
39	Direction of rotation	CW or CCW			
40	Total weight of motor	141	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
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Remarks:					
Data based on situation 12/14/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					



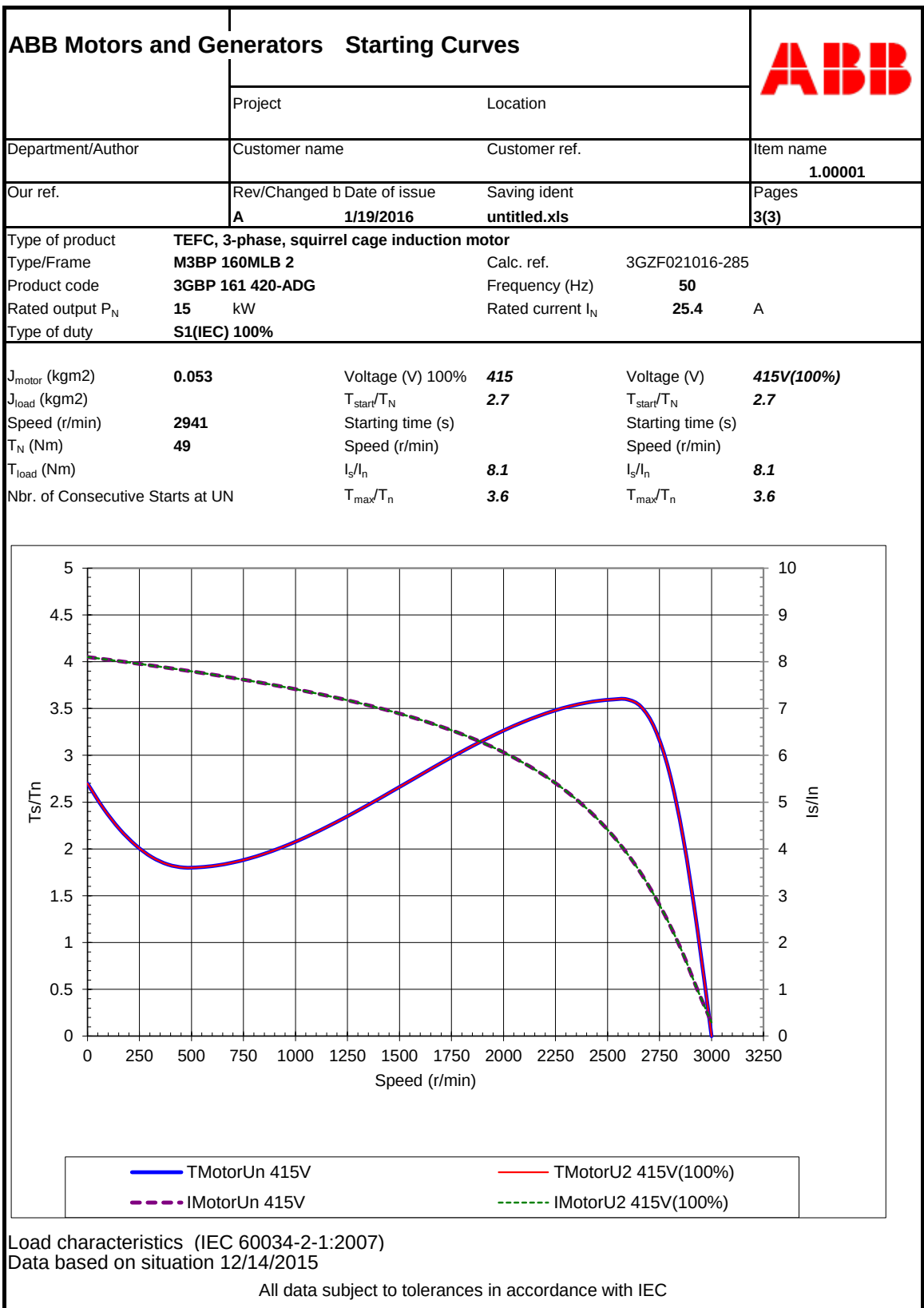
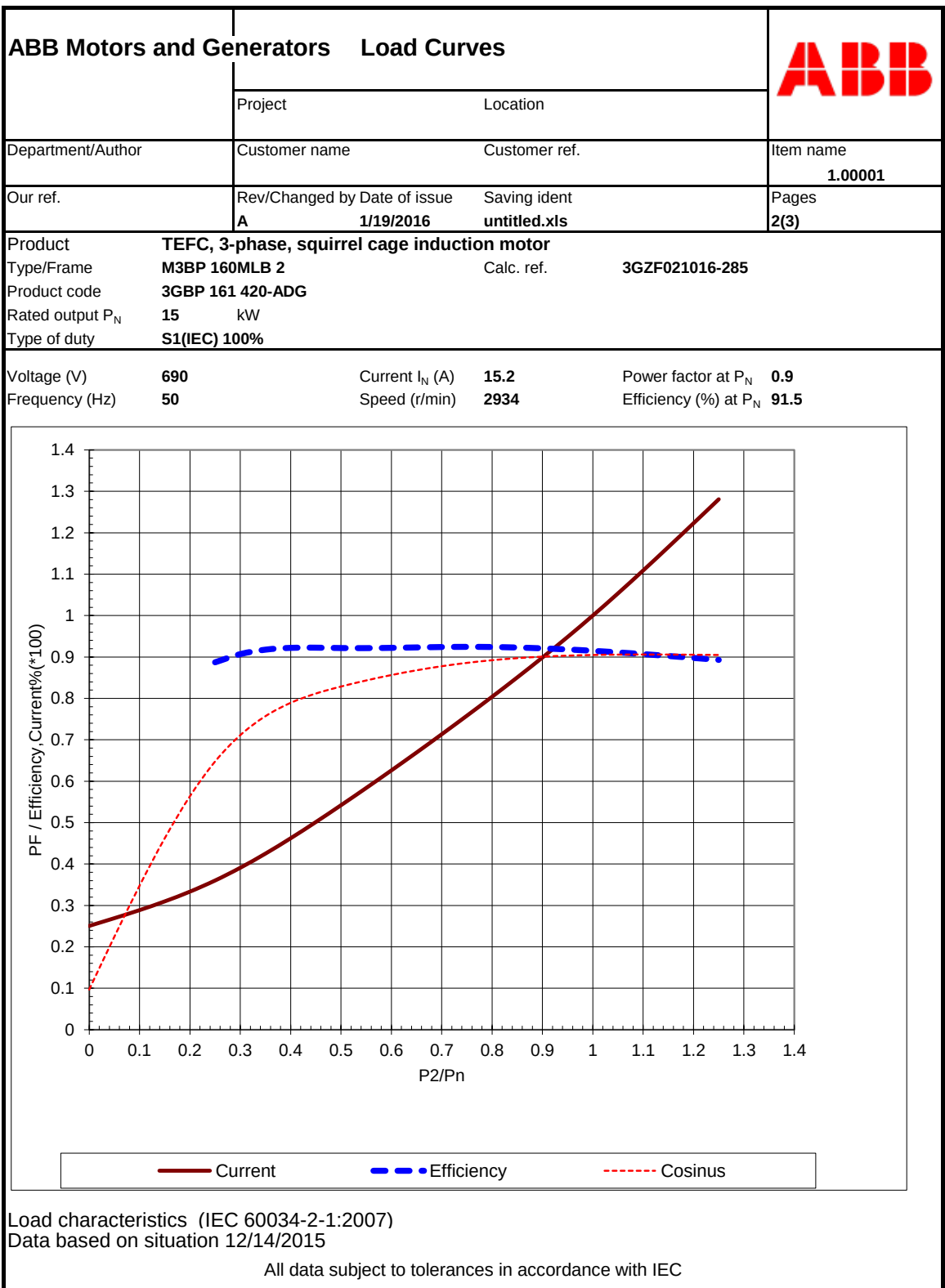


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author	Customer name	Customer ref.		Item name 1.00001	
Our ref.	Rev/Changed by A	Date of issue 1/19/2016	Saving ident untitled.xls	Pages 1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16152-PPN (3GBP161420-ADG+332+333)			Calc. ref. 3GZF021016-285
3	Type/Frame	M3BP 160MLB 2			
4	Mounting	IM1001, B3(foot)			
5	Rated output P _N	15	kW		
6	Service factor	1			
7	Type of duty	S1(IEC) 100%			
8	Rated voltage U _N	690	VY	± 5 % (IEC 60034-1)	
9	Rated frequency f _N	50	Hz	± 2 % (IEC 60034-1)	
10	Rated speed n _N	2934	r/min		
11	Rated current I _N	15.2	A		
12	No-load current	3.8	A		
13	Starting current I _s /I _N	7.5		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T _N	49	Nm		
15	Locked rotor torque T _s /T _N	2.5			
16	Maximum torque T _{max} /T _N	3.3			
17	Minimum torque T _{min} /T _N	1.8			
18	Speed at minimum torque	480	r/min		
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor
19	PLL determined from residual loss	100	15.2	91.5 / IE2	0.9
20		75	11.5	92.4	0.89
21		50	8.2	92.2	0.83
22		Start	114		0.45
23	Maximum starting time from hot	15	s		
24	Maximum starting time from cold	27	s		
25	Insulation class / Temperature class	F / B			
26	Ambient temperature	40	°C		
27	Altitude	1000	m.a.s.l.		
28	Enclosure	IP55			
29	Cooling system	IC411 self ventilated			
30	Bearing DE/NDE	6309/C3 - 6209/C3			
31	Type of Grease				
32	Sound pressure level (LP dB(A) 1m)	69	dB(A)	at load	
33	Moment of inertia J = ¼ GD2	0.053	kg-m2		
34	Balancing				
35	Vibration class				
36	Position of terminal box	Top			
37	Terminal box entries; no, dimens.				
38	Number of power terminals				
39	Direction of rotation	CW or CCW			
40	Total weight of motor	141	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
50	333 = Not for use in the USA				
51					
52					
Remarks:					
Data based on situation 12/14/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					



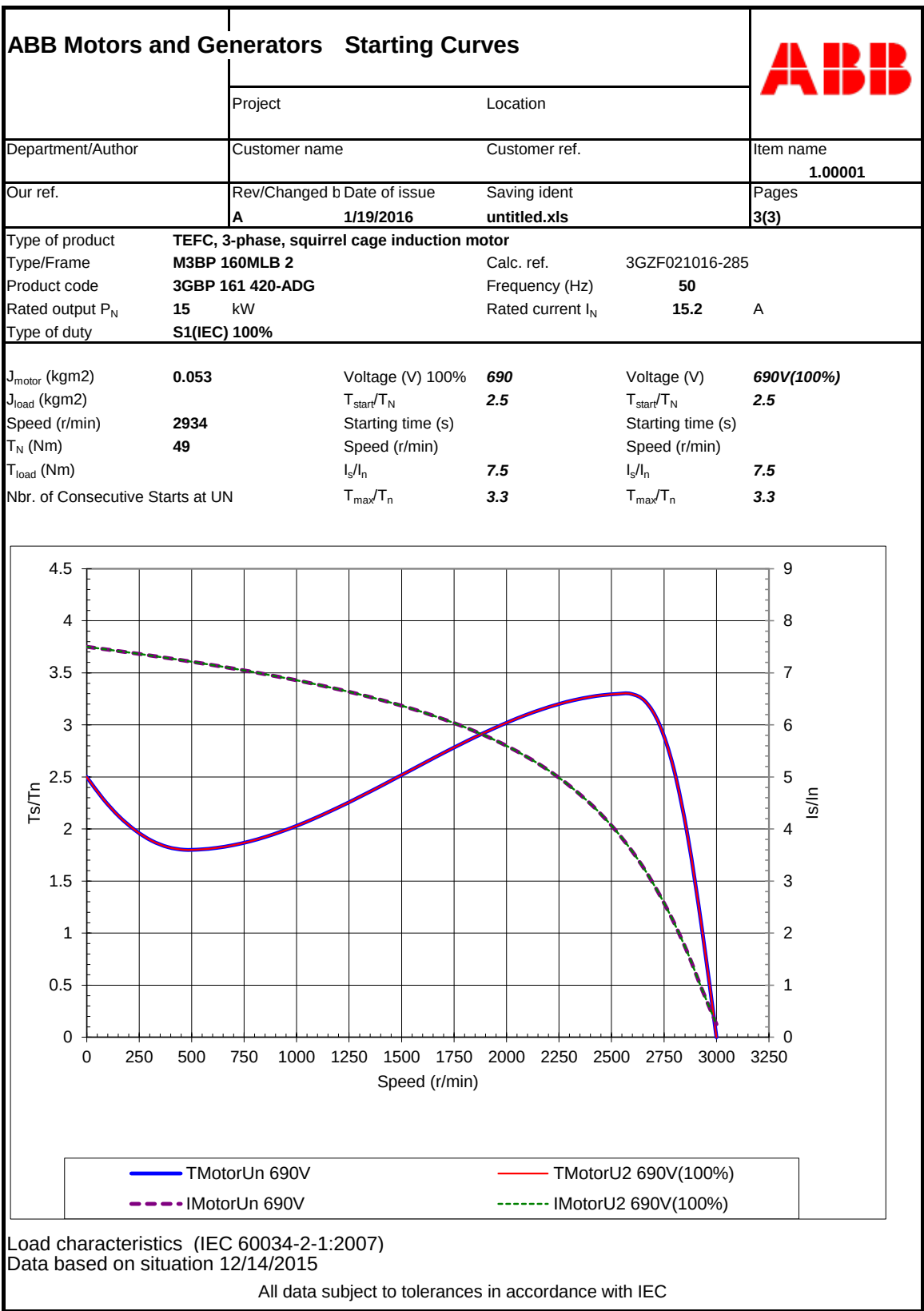


ABB Motors and Generators		Technical Data Sheet - DOL			
Project		Location			
Department/Author		Customer name		Customer ref.	
Our ref.		Rev/Changed by		Date of issue	
		A		1/19/2016	
		Saving ident		untitled.xls	
				Item name	
				1.00001	
				Pages	
				1(3)	
No.	Definition	Data	Unit	Remarks	
1	Product	TEFC, 3-phase, squirrel cage induction motor			
2	Product code	MM16152-PPN (3GBP161420-ADG+332+333)			
3	Type/Frame	M3BP 160MLB 2			
4	Mounting	IM1001, B3(foot)			
5	Rated output P _N	15	kW		
6	Service factor	1			
7	Type of duty	S1(IEC) 100%			
8	Rated voltage U _N	460	VD	± 5 % (IEC 60034-1)	
9	Rated frequency f _N	60	Hz	± 2 % (IEC 60034-1)	
10	Rated speed n _N	3545	r/min		
11	Rated current I _N	22.9	A		
12	No-load current	6.1	A		
13	Starting current I _s /I _N	8.7		Fullfilled IEC 60034-12 design N,H	
14	Nominal torque T _N	40	Nm		
15	Locked rotor torque T _s /T _N	2.7			
16	Maximum torque T _{max} /T _N	3.8			
17	Minimum torque T _{min} /T _N	1.9			
18	Speed at minimum torque	576	r/min		
Load characteristics (IEC 60034-2-1:2007)		Load %	Current A	Efficiency %	Power factor
19	PLL determined from residual loss	100	22.9	90.9 / IE2	0.9
20		75	17.5	91.2	0.89
21		50	12.8	90	0.82
22		Start	199		0.42
23	Maximum starting time from hot	15	s		
24	Maximum starting time from cold	27	s		
25	Insulation class / Temperature class	F / B			
26	Ambient temperature	40	°C		
27	Altitude	1000	m.a.s.l.		
28	Enclosure	IP55			
29	Cooling system	IC411 self ventilated			
30	Bearing DE/NDE	6309/C3 - 6209/C3			
31	Type of Grease				
32	Sound pressure level (LP dB(A) 1m)	77	dB(A)	at load	
33	Moment of inertia J = ¼ GD2	0.053	kg-m2		
34	Balancing				
35	Vibration class				
36	Position of terminal box	Top			
37	Terminal box entries; no, dimens.				
38	Number of power terminals				
39	Direction of rotation	CW or CCW			
40	Total weight of motor	141	kg		
41	Dimension drawing no.				
42					
43					
44					
45					
Ex-motors					
46					
47					
48					
Option Variant Codes / Definition					
49	332 = Baldor Catalog number stamped on rating plate				
50	333 = Not for use in the USA				
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Remarks:					
Data based on situation 12/14/2015					
All data subject to tolerances in accordance with IEC					
Guaranteed values on request					

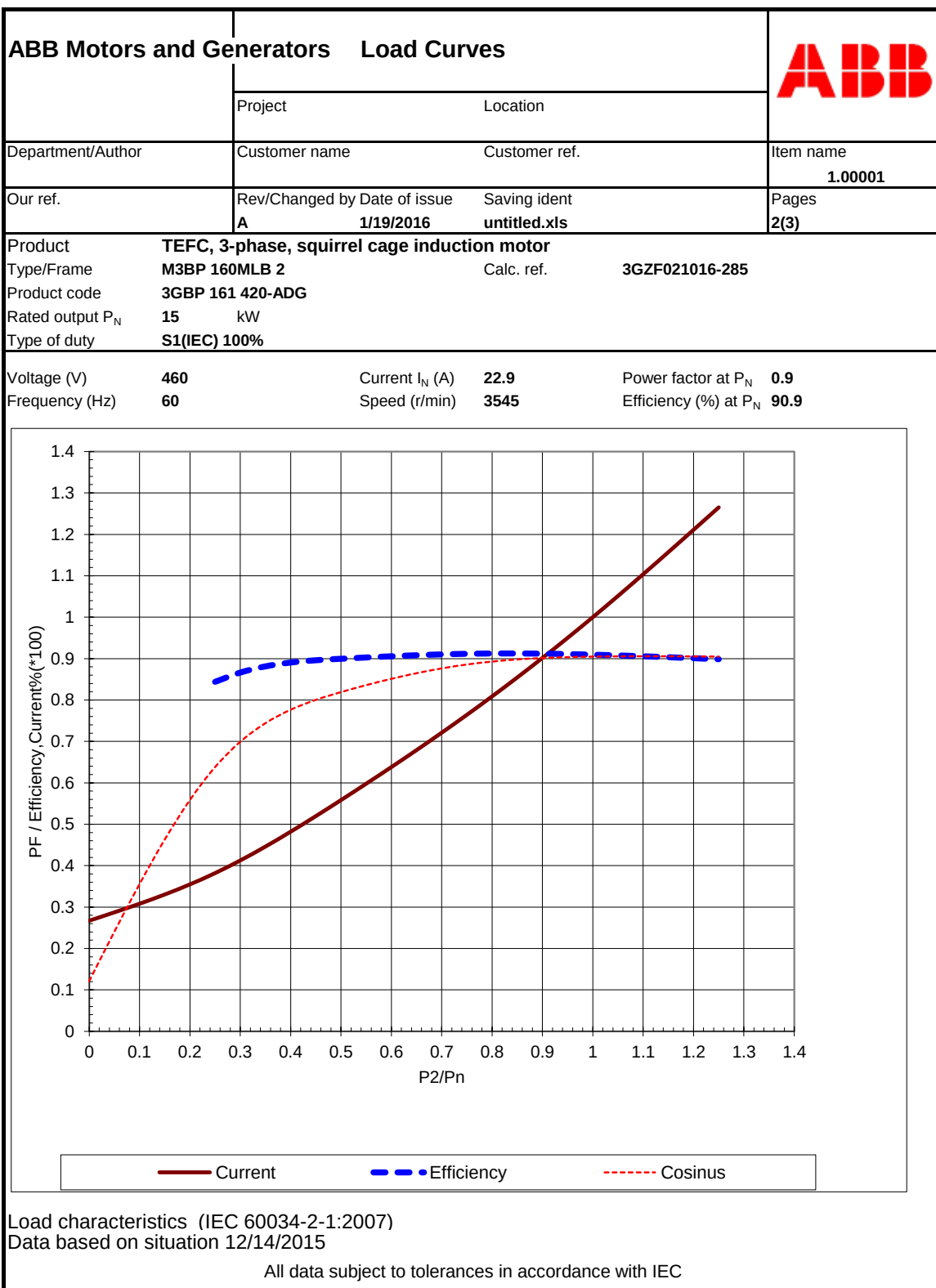


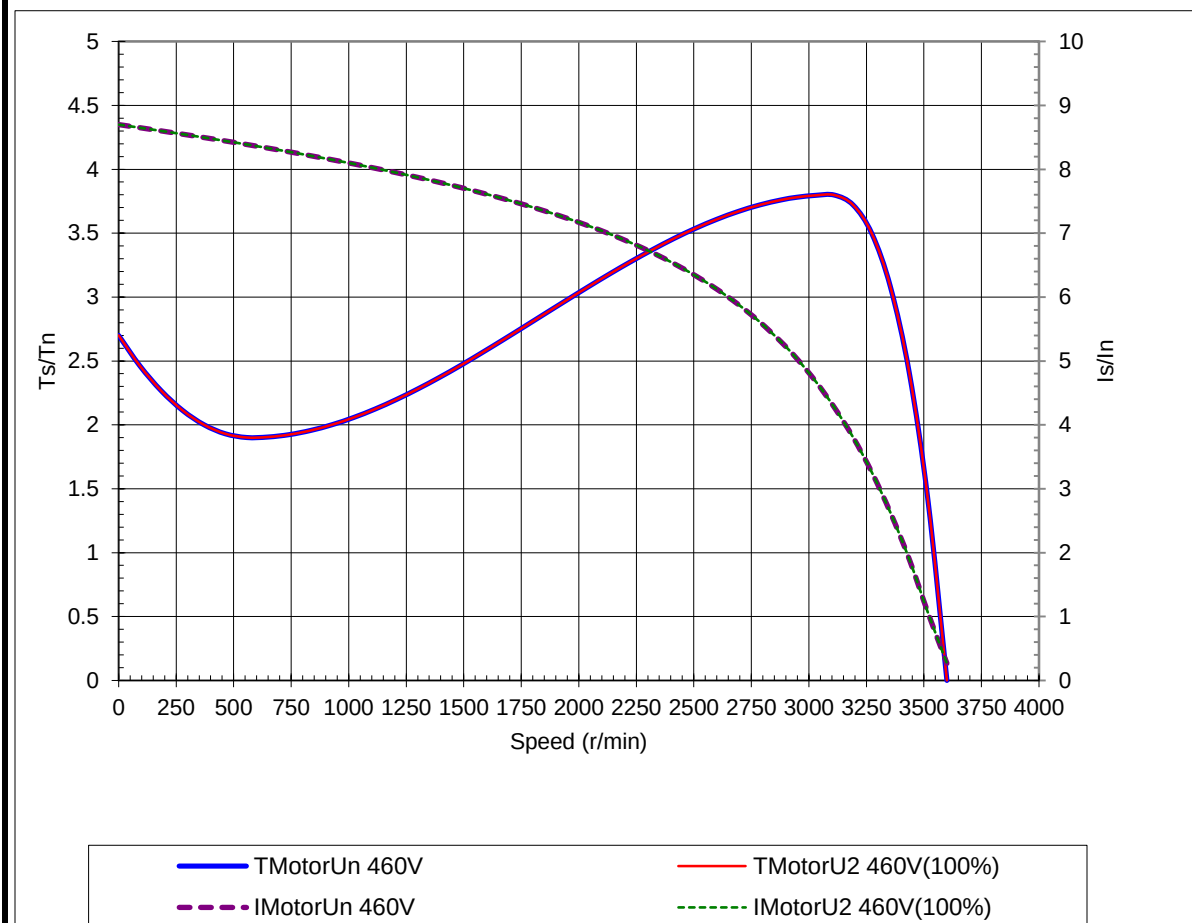
ABB Motors and Generators Starting Curves



	Project	Location	
Department/Author	Customer name	Customer ref.	Item name
			1.00001
Our ref.	Rev/Changed b Date of issue	Saving ident	Pages
	A 1/19/2016	untitled.xls	3(3)

Type of product	TEFC, 3-phase, squirrel cage induction motor		
Type/Frame	M3BP 160MLB 2	Calc. ref.	3GZF021016-285
Product code	3GBP 161 420-ADG	Frequency (Hz)	60
Rated output P_N	15 kW	Rated current I_N	22.9 A
Type of duty	S1(IEC) 100%		

J_{motor} (kgm ²)	0.053	Voltage (V) 100%	460	Voltage (V)	460V(100%)
J_{load} (kgm ²)		T_{start}/T_N	2.7	T_{start}/T_N	2.7
Speed (r/min)	3545	Starting time (s)		Starting time (s)	
T_N (Nm)	40	Speed (r/min)		Speed (r/min)	
T_{load} (Nm)		I_s/I_N	8.7	I_s/I_N	8.7
Nbr. of Consecutive Starts at UN		T_{max}/T_n	3.8	T_{max}/T_n	3.8



Load characteristics (IEC 60034-2-1:2007)
Data based on situation 12/14/2015

All data subject to tolerances in accordance with IEC